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Success With Small Fruits



Published by W. F. ALLEN, Salisbury, Maryland



Why This Booklet Was Printed

EVER since I began growing small fruits—a quarter of a century ago—my friends have been writing to me asking questions about the best varieties, cultivating, mulching, and other things. The questions might be contained in one inquiry, “How shall I care for my plants so that I may have big crops of fruit?” I have always tried to answer these inquiries personally, but the task has become too great, and so I have had this booklet prepared by one who is an acknowledged authority on fruits and fruit culture, Professor W. F. Massey, of Salisbury, Md., and who is also known as a prominent writer on horticultural topics.

The booklet is intended to be a practical guide to growing small fruits of all kinds, but as strawberry plants are my specialty, considerable space has been devoted to these plants, for the garden strawberry is strictly an American product and in its varieties is adapted to a wider range of climate and greater extremes of environment than any other cultivated fruit. Of course, I am always glad to have my friends and customers write to me and tell of their successes—their failures, too, if they are so unfortunate. If the letters are specially important, or contain requests for specific advice, they will be answered personally, but if this booklet will give the needed information it will be sent to you in place of a personal letter that could not cover so many important points in fruit-growing.

W. F. ALLEN, Salisbury, Md.

Bearghs.

Stations Strawberry mix
Sty. My

5-6-7-2
3-7-5

1000 lbs. Analysis
6. lbs. 50 lbs.

SUCCESS WITH STRAWBERRIES

Of all small fruits the Strawberry is probably of the greatest commercial importance in this country, and on the Maryland-Delaware peninsula the culture has attained an importance second to no other part of the country, since soil and climate favor the production of the finest plants and the most plentiful fruiting. In no section do the plants make better root-systems, and wherever the plants grown here have gone they have made a reputation.

Soils for Strawberries

There is no plant that so adapts itself to soils of all descriptions as the Strawberry. It is a fruit that can be grown anywhere, in sandy or clayey soils. But certain soils seem to be better adapted to certain varieties than others. While good drainage is essential, there is nothing that the Strawberry delights in more than a moist soil. Of course, it does not want standing water in the soil, but a soil that, while well-drained, has the water table only a few feet down, and in which there is a constant rise of capillary moisture, will always produce the heaviest crop. Late berries, like the Gandy, always do better on soils of this character than on high and dry soils.

But a strong clay-loam, so prepared that the roots can penetrate deeply into the soil, will always give satisfactory crops, and even on high, dry and sandy soils, the finest of berries can be grown from varieties suited to such soils. Hence, there is a great variation in the capacity of the different varieties for the production of fruit on soils of different types and in different climates, for varieties that are popular and profitable in some sections have not been found so in others. It may be, therefore, important

to test different varieties on a small scale before planting largely in any section.

Preparation of the Soil

Your land may be sandy loam, black swamp soil, heavy clay or a rich clay loam, and in any of these with good drainage you can grow good Strawberries. But of all locations avoid land that has been long in grass, for on such sods will always be found the larvæ of the May beetle, and there is no insect that will destroy Strawberry plants so badly as these. Low land in a valley between high hills is apt to be frosty in spring, while low land, or reclaimed swamp land in a generally level section will not be much more liable to frost than other land in the locality, and such land often makes the heaviest crops. On such land and on sandy soils in general, deep plowing is never advisable for the Strawberry, but on heavy clay loams it is well to plow the land deeply late in fall in preparation for the spring setting, and to replot more shallowly in the spring.

A growth of rye sown in the fall and turned under in the spring will help on heavy soils. This spring replotting will bring the best soil to the surface again, and we want

2-8-5. Fruit Special,

600 lbs. - 11.5 -
per. G. before the
plant started

the roots set in the very best of the soil. Of all things see that the drainage is good, and that no water stands on the soil, after a rain, for any length of time.

One thing to remember in the preparation of the soil is that the soil cannot be too fertile for the Strawberry, and that the richer it is made, and the more humus we get into it, the better the crop will be. Hence, it is well for the Strawberry-grower to look ahead for years and keep preparing land for the purpose by growing legume crops like cowpeas, to increase the humus content in the soil, for every commercial grower must be always preparing new locations for his plantations as the old ones are turned down. This getting of vegetable decay into the soil is the most important matter in its improvement for any crop, and especially for the Strawberry, for the more humus we get into the soil the better it will retain moisture, and moisture is as important to the Strawberry as anything else, for no matter how you fertilize, if the soil dries out, the fertilizer cannot be dissolved, and plants cannot get it unless it is dissolved.

Stable manure furnishes a large amount of vegetable matter to decay in the soil and form humus, and hence it is of especial value for the Strawberry. The main objection to it is that it will bring in weeds and grass. Since the Strawberry fruit is formed almost entirely through the assimilation of carbon from the air by the leaves, the crop of fruit has hardly any exhaustive effect on the soil, and the growth of a Strawberry plantation will enrich the land when plowed under. But as strong growth and

healthy leaves are essential to the making of the fruit, the soil must be fertile. Where stable manure is not accessible in sufficient amount, commercial fertilizers must be resorted to. In fact, stable manure alone is not a complete fertilizer for the berries, as it furnishes an excess of nitrogen and should be supplemented with phosphoric acid and potash, for any excess of nitrogen, while making a great leaf-growth, tends to make the fruit too soft for long shipment.

The large growers of the Atlantic coast, as a rule, use commercial fertilizers entirely in the production of Strawberries. Methods of using these vary. The best growers have found that a moderate fertilization at planting, and a heavier one after the first blooming, gives the best results. That is, after the fruiting season is over a heavy application of fertilizer and clean cultivation will make stronger crowns for the next season's fruiting, and strong crowns are essential to the making of a good crop. Therefore, in the preparation of the soil for planting it is not well to have too large an amount of caustic fertilizer in direct contact with the roots; a large application can be safely used by the plants after they have gotten a strong hold in the soil and the fertilizer is applied as a top-dressing. The best commercial mixture for Strawberries should be made at home, and not bought ready mixed. The following is excellent:

Acid phosphate (16 per cent), 900 lbs.; nitrate of soda, 100 lbs.; fish scrap, 600 lbs.; sulphate of potash, 400 lbs. This will make a ton. Harrow in, before setting the



This picture shows two plants of the same variety. Some growers charge more for plants than others. There is a reason.

plants, about 300 pounds an acre. The setting will generally be made in spring, and little fruit, or better none, will be had that spring. But, after the blooming and fruiting season, when the runners are starting freely, apply 700 pounds an acre between the rows and cultivate it in well, keeping the runners well trailed in along the rows, and the result will be an extra-strong growth for the fruiting season. The fish scrap in the above formula can be replaced by either cotton-seed meal or tankage, where these are more conveniently had.

Time for Planting

While in the South late fall planting is general, there is no doubt that for the greatest part of the country, spring planting should be the rule. In the Middle States and northward, hardly any other time is considered by the best growers for planting. The planting should be as early in spring as the soil can be worked in good condition, for the plants will always do better if set before they have started much new growth. It is not practicable always and in every section to do this, but the earlier they can be set the better they will grow that season, and in every section the planting should be done as fast as spring advances northward.

Handling the Plants

When plants are received from a distance they should be unpacked at once, and not left in the boxes as planting proceeds. Take the bunches out and make a trench and place them in it so that the roots can be at once covered with soil. This is especially important when a large quantity of plants are received, as they will keep in good condition heeled-in in this way while the planting proceeds. In heeling-in a large quantity

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400
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80

of plants it is well to make the soil fine and mellow before making the trenches, for the fine soils should be well pressed to the roots to keep out the drying air by tramping or patting down with a spade. When plants are received after a strong growth of leaves have been made, it is a good plan to remove most of the leaves so that they will not be pumping the moisture out before the roots get started in growth. This is largely done in shipping the plants, but it is well to have few leaves at the start.

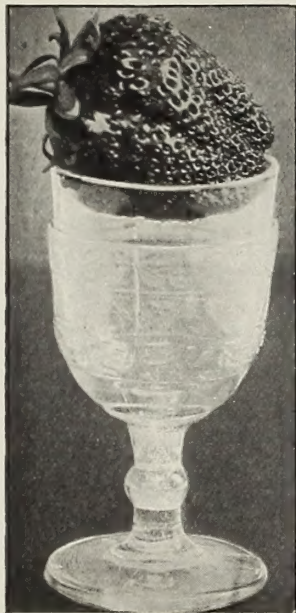
Then it is a good plan to chop off the fine tips of the roots, as the new fibers will start better from the cut surface. As fast as the plants are prepared for planting put them in wet gunny sacks, and keep them in the wet sacks in the field.

Laying Off the Ground

In garden-culture on a small scale, after the soil is made perfectly fine, the planting can be done by stretching the garden line where the rows are to be, and marking the rows with a marker made with wooden teeth like a big rake. This marker can be made with teeth set a foot apart on a piece of scantling, and with handles to drag it by, and it can be used for planting in rows at various distances. For Strawberries that are to be grown in matted rows, a distance of 4 feet between the rows is best, but in garden culture one can set them in hills 2 by 3 feet, and keep them in hills, and keep all runners off, and in this way can get large crops of large berries. But for field-culture the matted row is the method in general use, and as a rule give entire satisfaction.

In large plantings, furrows are run with the plow 4 feet apart. (I plant in rows $3\frac{1}{2}$ feet apart.—W. F. A.) The fertilizer is placed in the furrows, and a furrow thrown from each side, making a ridge. The ridges are flattened with a roller and the plants set with a garden trowel, or by two men, one with a spade lifting the spot for the plant while another places the plant behind the spade, and the earth is then let fall back and pressed to the roots. It is important that the plants be set at the proper depth, not so deep as to cover the crown bud nor so shallow that the crown of the roots will be above the soil, but just as they would naturally grow.

Some set as close as 15 inches in the row, but the best distance is 20 to 24 inches. One grower suggests that as the new runners are always produced from the side of the plant that was farthest from the old plant from which the runner came, that this side should be set in the line of the row so that the new runners will strike out in the direction of the rows and not sidewise, as it is an advantage to have them in line in making the matted row. Cultivation should begin as soon as the plants start to grow, and it is well not to allow any fruiting the first season on spring-set plants, but to pull off the blossoms to make the plants strong. I advise comparatively light fertilization at the start when commercial fertilizers are used, and after the plants are well started in growth, to apply a heavy dressing between the rows to be cultivated in, and in this way to encourage the growth of strong runners and strong crowns for the next season's fruiting.



One Mascot berry fills a wine-glass

How Long Should a Patch Be Fruited?

There is some difference of opinion in this. In the far South it has become the general practice to take but one crop of fruit. Others take two crops, and some even take three crops before turning the plants under. Where the land is kept clean it is possible, but seldom profitable, to take three crops, for the white clover and grass get so strong a hold that it pays better to plant a new plantation every year than to keep an old bed clean. In hill-culture in gardens it is easier to take the three crops, but in the matted-row system two crops should be the limit. I have found that the best plan is to always have two plantations, one with its first crop and one with its second, and after the second crop to turn the growth all under for a late crop of vegetables. This means of course the making of a new plantation every year.

Sex in Strawberries

The Strawberry plant is botanically a member of the rose family, and its blossoms are constructed just like those of the wild single rose. But in some varieties of the Strawberry the male organs or stamens are largely aborted, and the flower has pistils only. The edible part of the Strawberry is simply the enlarged receptacle on which the flower rests. The true fruit, or what botanists regard as the fruit, is the ripened ovary with its seed at the base of the pistil. These are scattered all over the enlarged mass commonly called the fruit, and it is found that unless the pistils are fertilized by the male pollen, and the seed set, the receptacle does not enlarge into the edible fruit. Hence, it is necessary with those varieties that make only pistils in their flowers, that some plants with perfect flowers be set near by, so that the bees can carry the pollen to the pistils.

Some of these pistillate varieties are the most productive that we have when they are supplied with pollen. They are not always entirely devoid of stamens, but not with enough to set a large crop unless aided by those that form an abundance of pollen. Hence in planting the pistillate varieties I have found it best to plant a row of a strong, perfect-flowered sort every sixth to eighth row. (While one row of perfect-flowered varieties in six or eight would usually be enough, many commercial growers are planting and recommending one row in three, or one in four of the perfect-flowering sorts. W. F. A.

After Fruiting

In the gathering of the crop the soil gets tramped and packed, and a large amount of moisture escapes from the soil. It is important then that as soon as the crop is off, the spaces between the rows should be cultivated in order to make a mulch of loose soil on the surface to prevent the evaporation of moisture, and this shallow and loose mulch should be maintained through the remainder of the season, aided, as I have suggested, by the heaviest fertilization. If the soil between the rows is allowed to get crusted or to grow up in weeds and grass, there will be a smaller growth and a smaller crop the next season.

Winter Protection

In the greater part of the Middle States and the North in general, it is important to give some protection to the plants in winter. Some have advocated the sowing of oats between the rows in late summer to die down in winter and make the mulch. But it is far better to apply a mulch of wheat-straw in the late fall. But this mulch should not be too heavy, just barely enough to cover the crowns of the plants well. In the South the leaves of the pine tree are used, but there the mulch is not applied in the fall, but only in spring, as a means for keeping the fruit clean and to have at hand material for pulling over the plants when in bloom and frost threatens. With the earliest start of the leaves the mulch should be pulled back from the plants and left to keep the fruit clean, and should then be removed for cultivation. Rough, strawy manure from a horse-stable scattered along on the rows in the fall

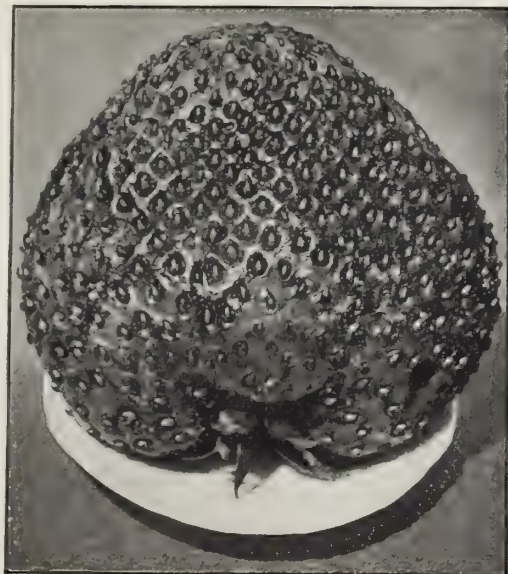
makes a good winter protection, and is washed clean by spring, and can then keep the fruit from the grit, and at the same time it helps the growth of the plants.

Cutting Runners

While we want the early runner trained in along the rows to make the matted row, we do want a surplus of runners spreading on both sides to take the strength that should go into the making of strong fruiting crowns for the next season. Hence, after a sufficient number of runners are set the remainder should be kept cut off along the rows. Revolving cutters have been invented for this purpose, but the best thing I have found is a sharp corn-knife used by a boy to pass along the rows and cut all outside of a fixed line on each side. He can do this rapidly and more perfectly than any machine I have ever seen, and the long corn-knife does not call for much stooping.

In Early Spring

After the mulch is off and before the fruiting season, keep a sharp lookout for the weeds that will start in the rows. These must be pulled out. I have seen men gathering Strawberries where the weeds were so tall as to hide the rows. Good crops cannot be made in this way, for the weeds are drawing the moisture from the plants just when they need it most. Where winter protection is not needed and the mulch is used only to keep the fruit clean, it is always best to give one shallow cultivation before applying the mulch. But this is not necessary where there is a winter mulch, as that will keep the soil moist. When the plants are in bloom and frost threatens, it will



How the Chesapeake Strawberry grows when given good care

always pay to put a force into the field and pull the mulch over the rows to protect the bloom. This can be easily done with wide, wooden rakes and a few minutes time will save the crop.

The Home Market and the Distant One

There are some very fine varieties of Strawberries that always grow too soft for distant shipping, but are excellent for home use and a near market. Then in gathering the crop it is always best to keep the grades of berries separate, shipping only the first-class berries. It is always allowable to arrange the top layer of berries so as to show well, provided all below them are equally good, but it is not honest to place a fine layer on the top of the box and stuff it with inferior fruit below. Skillful hands should be in the packing-shed to see that the berries are gathered properly and that the boxes are well packed and make a good showing.

Do not ship the culls but let them bring what they may at home, and always see that the boxes are of the proper size and well-filled, so that there will not be serious settling. The standard crates are the 32-quart and 48-quart crate. Formerly larger crates were used and more expensive ones, so that it was important to have them returned, and this return of cases was always a bone of contention with the railroads. Now the light veneer crates go with the fruit. Never use old weather-beaten boxes or crates, for the berries, even if first-class, will not sell so well in a dirty package.

Varieties

It is not our purpose to discuss varieties here, as our Catalogue will give full and truthful descriptions of the varieties. But there is a great difference in the behavior of varieties of Strawberries in different sections and soils. Hence, it is impossible to predict with accuracy what a certain variety

will do in a new locality. The safe way is for prospective planters to rely mainly on the varieties that have done well in their section, and then to buy, say 25 plants of others that they wish to test, and try them before investing more largely in them.

All producers of Strawberry plants grow many that are comparatively worthless in their soil and climate, because they do well in other sections, and the Catalogue descriptions are always made to suit the locality where the plants are produced, and may not turn out the same in other soils and climates. Hence the need for each one testing for himself. It has been found here that the Gandy, the finest of late berries in many sections, does not do well on high and dry soils, but is especially adapted to the black reclaimed swamp soils, while there are others of the same season that do well on the uplands. Testing the varieties on a small scale is important and interesting work, and the grower for market can well devote his garden culture for home use to this work, and thus learn the character of the fruits and get a home supply at the same time.

Implements of Cultivation

As shallow and frequent cultivation, and the maintenance of a dust mulch in dry weather is important to the conservation of the moisture the Strawberry especially needs, the fourteen-tooth cultivator with small teeth will be found a good implement. I would never use a deep running shovel plow in a Strawberry plantation. The first preparation should be deep, and then the soil well-fined and settled, but the after-cultivation should be shallow, and



Gandy Berries packed for shipping

no crust allowed to form, except when in fruiting season it is impracticable to keep the surface loose. But the man who simply keeps the middles clean, and lets tall weeds and grass grow in the rows, will never make fine fruit. The weeds must be taken out of the rows before they get big, and hand-weeding will always pay.



The new Watt Blackberry

BLACKBERRIES

The upright-growing, or bush Blackberries immediately succeed the earlier dewberries, one variety, the Early Harvest, often lapping in on the dewberry. Nearly all the varieties of Blackberries that are cultivated have been chance seedlings found growing wild, and have been propagated from these. A few varieties have been produced from seed planted for the purpose.

The best soil for the Blackberry is a strong clay loam retentive of moisture, though they will grow and thrive on a great variety of soils if fertile. A soil abounding in humus or organic decay, whether sandy or clayey, is better than a soil deficient in humus, and in preparing for the planting of Blackberries it is well to start ahead and grow a legume crop, say cowpeas and crimson clover, on the land to turn under to increase the humus-making material.

The plants should be set in rows 6 feet apart and 3 feet in the row. The cultivation should be shallow, for any deep working increases the tendency to sucker, and too many suckers should not be allowed to grow. Three good canes in a hill will be plenty, and all others should be chopped out during the summer.

After fruiting, cut out the old canes and then allow the new ones to grow. Pinch the tips at about 3 feet in height, to make them bushy and better able to stand. In commercial culture no stakes are used, but in the garden it is neater to stretch a line of the chicken-wire netting and train the canes out in a sort of fan-shape on this. A Blackberry or dewberry plantation can be maintained for a good many years if the soil is kept fertile and the plants well attended to and cultivated.

DEWBERRIES

The Dewberry has become one of the most profitable of small fruits in many parts of the country. It is simply a species of Blackberry that naturally trails on the ground. There are two species. One is botanically *Rubus trivialis*, or the Southern Dewberry. The other is *Rubus canadense*, or the Northern or Canada Dewberry. All the cultivated Dewberries belong to this species, as the fruit is larger and finer than that of the *R. trivialis*.

Dewberries differ from the ordinary high-bush blackberry in the fact that they root from the tip like the blackcap-raspberry, and do not sucker freely like the high-bush blackberry. There are few varieties in cultivation, in fact, only two in common use. The Lucretia has long been the standard variety, and is still largely grown. But of late years the Austin has been coming into use and is being preferred in many sections. The Dewberry fruits on canes of the previous year's growth, which are cut away after fruiting and the new canes trained up.

Methods of Cultivation

Many methods of cultivation have been tried with the Dewberry. In the first inception of the work it was common to set stakes about 2 feet tall, and stretch wire from stake to stake to train the canes on. It was soon found that the canes chafed on the wire and many were spoiled. Then some of the southern growers set forked stakes of same height, and laid light hoop poles for training the canes on. This too was soon abandoned, and upright

stakes set at the hills for tying up the canes. This is still the practice in southern Atlantic region.

Those who train to stakes set the plants in rows 5 feet apart and 3 feet in the row. After the fruiting canes have been removed an average of three canes is allowed to grow; these are trained in along the rows on the ground out of the way of cultivation, and allowed to remain on the ground during the winter and are tied to stakes in the spring.

In this section the use of stakes or any support has been largely abandoned. The plants are set at equal distances each way and the canes pinched during the summer to induce bushiness, and cultivation is carried on both ways. While the training to stakes may perhaps make a better crop, the cheapness of the other plan more than balances the cost, and is found more profitable. Dewberries are not particular as to soil, but a strong clay loam will always make the heaviest crop. Drought in fruiting time is the most serious trouble, and hence a soil naturally retentive of moisture is best, for there is often a serious loss in very dry weather, the berries drying up on the plants. (My advice is, do not plant Dewberries on rich garden soil, as they go too much to vine to the detriment of the fruit. Plant in soil of only medium fertility or on poor soil, using a fertilizer with a small percentage of ammonia and a large percentage of potash, applied as a top-dressing after the plants have gotten well started; this gives best results.—W. F. A.)

RASPBERRIES

There are three general classes of Raspberries, each differing in habit and needing different treatment. The Red class are grown from root cuttings, while the Blackcap and purple species makes plants from the tips of the canes rooting. Hence the treatment of each varies.



The Columbian Raspberry

RED RASPBERRIES

The Red Raspberries in cultivation are either from the native species *Rubus strigosus* or the European, *Rubus Idæus*, or crosses of these. There are varieties of the European Raspberry with golden yellow fruit, but these are seldom cultivated commercially. The native Red Raspberry is a very stiffly erect-growing plant and quite bristly. The European varieties are erect but less bristly, and the foliage is whitish underneath. Another species of Red Raspberry was introduced some years ago from Japan under the name of Japanese Wine Plant. This is a rank-growing plant, making long, trailing canes and small fruits. It is too tender for cultivation north of Maryland and has never been grown commercially.

In the mountains of North Carolina and northward, there is a native Red Raspberry, *Rubus odoratus*, that has large pink flowers like a wild rose, and is sweet-scented; but the fruit is soft and of little value, and the plant is a rank climber. What we wish especially to treat of is the Red Raspberry that is grown commercially for market and for home use in the garden. Red Raspberries thrive best in a strong soil inclined to moisture. They have been grown successfully on a sandy soil where the humus conditions have been maintained by liberal manuring with stable manure, so that the soil is made more retentive of moisture.

The tops or canes of the Red Raspberry, like those of the blackberry, are biennial, and are to be cut out after the fruiting season is over. Three or four good canes are sufficient in a hill, and all suckers should be kept hoed out. New canes can then gather strength for ripening next crop.

Planting and Cultivation

When the old Antwerp varieties were grown, it was common to plant them 6 feet apart each way, but with the varieties now grown commercially we have found that rows 6 feet apart and plants 3 feet in the row give the best results. In very strong garden soil it may be better to give a little more room in the rows. In planting, the canes should be cut back well, for the first season's growth should be devoted entirely to the making of strong canes for the following season's fruiting. This is also true of all Raspberries and blackberries. The best fertilizer for Red Raspberries is rotten stable manure, but where this cannot be had any high grade commercial fertilizer may be used in a liberal manner. Bone meal seems to be especially suited to the needs of the plants. Clean cultivation and level culture is important through the whole season, making it rather shallow to prevent the formation of too many suckers, and where the cultivator does not reach in the rows the hoe must come in to clean the weeds, for weed growth of any sort draws the needed moisture from the plants and makes it difficult to pick the berries.

Pruning Some growers prefer to let the full growth be made during the season, and to shorten back the leading cane and the side shoots in spring. A better

plan, I think, is to pinch the leading shoots at about 4 feet to induce more side shoots, and these, if necessary, may be somewhat shortened in the spring. The main pruning for all the Rubus tribe is the cutting out of the old canes after the fruit is off. Some defer this until the canes are dead in the fall, but this interferes to a great extent with the growth of the new canes, and it is better to cut out the old ones as soon as the fruit crop is over. They are far more easily handled then than when dead and brittle.

Training Many growers still adhere to training to stakes, but where the summer pinching is attended to the plants get bushy enough to stand upright well and stakes are not necessary in the field. The varieties now generally grown are better suited to this method than the old Antwerp varieties of the European class. In the garden, where neatness is an object, the plants can be trained out on chicken-wire, in a sort of fan-shape, and tied to the wire trellis. This chicken-wire makes the best support in the garden for all sorts of climbing plants, like beans, peas, blackberries and dewberries. With simple, systematic care more satisfactory results are obtained from raspberries than from most other fruits.

Winter Protection In cold climates, north of Maryland, it is well to use some protection to the canes of the Red Raspberry in winter. The best and most simple plan is to bend the canes down along the rows and cover with earth from the middles. This is done late in the fall, and the earth removed, after hard freezing is over in spring.

BLACKCAP RASPBERRIES

These differ from the Red class in their manner of growth and increase. They do not sucker so freely, but are increased by rooting the tips of the growing canes. This is not practiced in plantations for fruiting, but only by nurserymen who want the whole strength of the cane devoted to fruiting. Blackcaps differ in their growth from the Red Raspberrý, making much longer canes. They are native in all parts of the country, and vary greatly in their fruit, so that a great many varieties have been produced. While the Blackcaps can be grown without stakes by close pinching of the canes, it is better to train them to stakes, pinching the long canes so as to promote the production of side shoots, and a great production of fruit. I would always plant the Blackcap Raspberries 6 feet apart each way and cultivate both ways.

They are far more hardy in winter than the Red Raspberries and seldom need any winter protection; the fruit

stands shipment better than that of the Red Raspberry. (My method of planting is in rows 5 feet apart and 3 feet apart in the row.—W. F. A.)

PURPLE RASPBERRIES

These differ from other Raspberries in their capacity for making a fall crop. The fruit is more acid than either the Red Raspberry or the Blackcap, and is of a dull purple color. These varieties have been little grown for commercial purposes, and the only difference in their treatment I would suggest is to cut down to the ground the entire hill in the spring, and depend entirely on the fall crop made from the new canes. In this way they will make a larger crop than if treated as Red Raspberries. (Don't cut them all back in the spring; you will be pleased with the abundant crop, and, as they are very vigorous, they often produce a good crop where both the Reds and Blackcaps fail.—W. F. A.)

THE CURRANTS

This is especially a fine fruit for the cooler sections of the country, and diminishes in importance as we come South, until from North Carolina southward it is of little value, and produces very little fruit except in the cooler mountain sections. There are several species of the Currant, and many varieties of each. The varieties grown for market all belong to the class that produce red

fruit. There are varieties of the same species that make white fruit, but these are of little commercial importance. All the varieties of red Currants in cultivation have originated from the old Red Dutch Currant, and while the fruit has been improved in size of berry, none, so far as I have observed, bear larger crops than the old Red Dutch, which has almost disappeared from cultivation.

Soil and Cultivation

Red Currants are more particular in regard to soil than most other small fruits. They will grow in a hot sandy soil, but are never so productive as in a cool, moist clay loam, and no small fruit will repay liberal manuring better. While the vitality of the plant is great and it will grow in almost any soil if fertile, the moisture-retaining character of a clayey soil, well supplied with humus, will always make the crop greater and better.

Pruning and Training

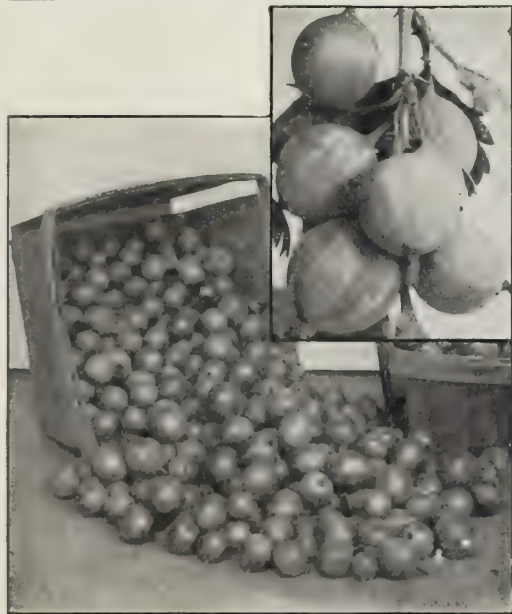
While some growers have attempted to train the Currant to a single stem in tree-like form, this is not the best, especially as a commercial fruit. The bush form in which shoots are thrown up from the base is always the best. The pruning needed is to prevent too many shoots coming up from the base and crowding the bush, and the cutting out of the old gnarley shoots that have served their purpose. Half a dozen thrifty shoots will make more and larger fruit than a crowded cluster, and the effort should be to maintain a supply of vigorous two-year-old shoots, and then eliminate the stunted ones. The first season allow three good shoots to grow, and the next spring shorten these slightly if they have made a long growth, and encourage new shoots from below. In a dry sandy soil I have found that a good mulch of sifted coal ashes under the plants will retain moisture better than any other material.

BLACK CURRANTS

These differ very greatly from the red Currants. They are much stronger growers, and are seldom grown for market, as there is little demand for the fruit, which is not so palatable to most people, and is mainly used in making black Currant wine. While the red Currants need to be planted about 6 feet apart each way, the black ones need 8 feet at least.



A splendid bunch of Red Currants



The Downing Gooseberry—spray reduced size

GOOSEBERRIES

The Gooseberry has attained a greater commercial importance of late years than formerly, and in many sections has become a very profitable fruit. It is always sold in the green state, though the ripe fruit is very acceptable to most people. Like the currant, the Gooseberry thrives best in a cool climate and a moist clay soil. When grown in a warm sandy soil, it will be found that the coal-ash mulch advised for the currant will be a great advantage. The Gooseberry is worthless in the South, and seldom fruits well south of Maryland, except in the mountain sections.

Pruning and Training

Amateur growers often train the Gooseberry, like the currant, to a single stem, but commercially the bush form is the only profitable way to grow them. Little pruning is needed, and that mainly to remove the stunted shoots and to keep up a supply of vigorous new shoots from the base. They may be set from 5 to 6 feet apart each way, and cultivated both ways. The richer the soil the more distance apart, of course, as the growth will be stronger in the strong soil. Spraying regularly with Bordeaux mixture is important to keep down the mildew from the fruit. The varieties grown in this country have mainly been produced from the native species. The English Gooseberry is much larger, but far more inclined to disease, than the native species, though some of the English sorts have been grown with success, and now with spraying it is probable that most of them can be grown.

It is important as one means for preventing mildew that the head of the bush be kept open and not allowed to get crowded with shoots, as in a crowded state the mildew is always worse.

GRAPES

The Grape is probably the most important of the small fruits, not only commercially in various sections, but for the home garden. There is no fruit more easily grown in any soil and any climate in the country. It is particularly the fruit for the sandy and gravelly soils of free and open texture and good drainage. It takes little room in the home garden, for the garden fences can be transformed into trellises, and not only answer their purpose as an enclosure, but will be made more beautiful and attractive when covered with vines. This is especially true where woven-wire fences are used. Then, too, the walks of the garden can have arbors built over them and the vines trained overhead and take room that would otherwise produce nothing.

All the varieties of Grapes grown in this country, except in California and Arizona, where the European varieties thrive, are of native origin, and most of them belong to the order Labrusca, though some are claimed to have a cross of the European Vinifera. The great difficulty with the Vinifera class of Grapes in this country has been that they are destroyed by the Phylloxera insect on the roots, and are very subject to mildew. Our native vines are resistant to the Phylloxera, and of late years many of the European vineyards have been renewed by grafting their vines on American Grape roots. Now that we have the spraying mixtures for the mildew, it may be that some of the foreign varieties of Grapes can be grown here if

grafted on our native varieties. This, however, is the work for the experiment stations, and planters for market or home use had better adhere to the species that have been successful in this eastern part of the country.

Planting and Training

In planting Grapes always use strong one-year-old vines. The previous preparation of the soil is of importance, for the Grapes are long-lived and need a deeply prepared and well-enriched soil. Good drainage is essential, for the Grape-vine will not thrive in a wet soil. The best soils generally are those of a sandy or gravelly nature, with a subsoil easily drained. Deep and thorough preparation should be made before planting, and the soil well-enriched. In garden soils, where stable manure has been used for years, it is best to use a heavy application of raw bone-meal. In fact, there is nothing that the vines like better than a bone, and any waste bones about the place will be usefully buried under the vines in planting.

When planting on a commercial scale, the first thing to consider is the distance apart for the varieties. This will depend largely on the mode of training and pruning. In the old method of training to stakes and pruning to single stems that are spurred closely every year, the vines could be planted more closely than is now practised when trained on a trellis. Many plans have been devised for trellises, and innumerable and intricate modes of training and pruning. Books on Grape culture abound in cuts



Great bunches of Grapes like these can be grown by any one who gives the vines proper care

showing the different methods by which the effort is made to keep the vines in an exact shape, all of which is very pretty in garden culture, but is seldom seen in practice.

The old method of pruning to two or three buds of the last year's wood has been largely abandoned, and the pruning is now directed to the renewal of the long canes annually, as it is found that the buds near the base of the shoots do not make as fine clusters as those a little further out on the cane. Hence, some modification of what is called the renewal system is best. I have found that Grapes trained horizontally on arbors or horizontal trellises are far less liable to rot than those on vertical trellises. I once had an arbor over a garden walk on which Grapes were trained. On the sides of the arbor the Grapes rotted badly if not sprayed, while overhead they never rotted even when not sprayed.

The best trellis I have ever used was a modification of what is called the Munson trellis. For this trellis the vines were planted 8 feet apart in the rows and the rows 10 feet apart. Stout posts were set along the rows and crossbars of 2 x 4 scantling, 2½ feet long were nailed to the tops of the posts. One line of wire was stretched along the tops of the posts and two other wires stretched on each side of this line at the ends of the cross-bars. The vines were trained up with a single cane to the center wire, and arms taken each way on this wire. The fruiting shoots were then taken over the outer wires and the fruit cluster hung below. Strong canes were grown each season from near the fork of the branches, and these were laid

out as the arms the following season, and the old ones cut out.

It must be remembered that our Grapes, with the exception of the southern Scuppernong, always produce their fruit from the wood of the previous year's growth, and in order to have fruit we must have a good supply of strong canes of the previous year's growing. Hence, whether you train on a vertical trellis or on an arbor, or other horizontal fixture, the pruning should be directed to the production of a sufficient amount of young wood for the following season's fruiting; the younger the stock the easier trained. So long as you have this it matters very little just in what shape you train the vines.

When to Prune The general practice in the North is to prune in the fall, but as we come southward I have found that it is always better to prune just before the vines start in growth. When pruned in the fall they start in growth often at an untimely season and may get the shoots injured by a return of cold, while pruned late they will not have started their buds. Some object that they will bleed when pruned in the spring, but if it is done just before the buds swell the opening leaves will soon stop the bleeding. I have seen, in North Carolina, vineyards that were pruned in the fall start and make strong shoots while the unpruned vines had hardly swelled their buds, and a sudden freeze cut off the young growth from the pruned vines, while the unpruned ones were not hurt at all. Therefore, from Maryland southward, I would always prune Grapes in spring rather than fall.

ASPARAGUS

One-year-old roots of Asparagus are always to be preferred to older ones. They suffer less in transplanting than roots that have remained in the nursery rows for two years. There has been in times past a great deal of needless work in planting Asparagus. This was especially true of the cultivation in the home gardens. Years ago it was common in private gardens to dig out a plot and pave the bottom, and then fill in with rich soil after setting the roots very deeply, with the idea that they must be kept from running into the subsoil, when, in fact, the tendency of the roots and tops is always to get nearer to the surface.

There should be some difference in the planting, owing to whether green or blanched shoots are desired. In some markets there is a demand for the white shoots, while in others the green and tender shoots bring the higher price. As a plantation of Asparagus is a matter for a number of years, the preparation should be made in the most thorough manner. A deep, sandy loam with an abundance of decayed organic matter is the best soil for Asparagus. A crop of cowpeas turned under the previous fall is a very good preparation, but the planting is always best done in the spring, as early as the soil can be worked in good condition, covering the crowns about 2 or 3 inches.

Where it is desired to cut the shoots partly under ground the trenches should be run out with a plow and then cleaned out with shovels fully a foot deep. Well-rotted stable manure is placed thickly in the trenches and supplemented with an application of a fertilizer high in ammonia and potash. The roots are set 2 feet apart, and covered shallowly till they start to grow, for if covered deeply at planting many will not get through at all. As the shoots grow the soil is worked to them till level, and the cultivation should be frequent and clean through the season. The dead tops are mown off in the fall and furrows thrown from each side making a bed over the rows, and cleaning out the middles. The beds will warm up earlier in spring than the flat surface.

Some still stick to the idea that salt is a special fertilizer for Asparagus. I have found that the best thing is to apply a heavy dressing of kainit over the rows in the fall when



Asparagus properly bunched
for market

bedding, and this will furnish all the salt desirable, and will give the potash too, and applied in the fall will not make the shoots later, as it is apt to do when applied in the spring. Planted in this way, the shoots are cut as soon as the tip shows above the surface, by pulling away some of the soil and cutting well down on the crown of the roots with a knife made for the purpose. But when cut in this way the part under ground, while white and attractive, is always tough and woody, and there is a growing demand for green shoots that are all tender and cut at the surface of the ground.

Where shoots of this kind are wanted, the planting is made more shallow than for cutting under ground, and the furrows 4 feet apart are made entirely with the plow. The furrows are liberally manured and fertilized and the summer cultivation is the same as for those planted deeper.

But whichever way is adopted, there is one thing that is essential. If you want big shoots of *Asparagus* you must manure and fertilize heavily and annually, for on the fertility of the soil depends the profit of the crop. Five hundred pounds an acre of Kainit in the fall when bedding, and 500 pounds of fish scrap or tankage and 500 pounds of acid phosphate harrowed in in the early spring will answer where only commercial fertilizers are used. *Asparagus* is a gross feeder, and the soil can scarcely be made too rich. The life of the bed depends almost entirely on the feeding of the plants, their distance apart in the row, and the severity of the cutting. The daily yield will depend very much on the weather, for cold nights fre-

quently check the growth of the plants. The location of the bed or field should be carefully selected, the soil carefully prepared, and the plants well cultivated if maximum results are expected.

Asparagus is a plant known as *dioecious*, that is, the male or staminate flowers are borne on one plant and the female or pistillate flowers on another. Since only the pistillate plants bear seed, and the seed-making is a severe tax on the plant, it will always be found that the plants that make seed do not make so large shoots as those that make no seed, and if it were possible to distinguish between them at planting it would be better to plant no seed-bearing plants. Some have advised digging out the seed-bearing plants as soon as noted, and replanting with two-year roots, the blooming of which has been noted. I have never tried this and cannot say what the benefit would be.

Of late years the *Asparagus* crop in many places has been attacked by a fungous disease or rust. This is shown by elongated oval splotches on the shoots, and it must be attacked vigorously by spraying with Bordeaux mixture. This will, to a great extent, diminish the disease. The Palmetto variety seems to be less liable to this disease than any other. (Giant Argenteuil has also become very popular during the last few years, and is considered one of the best disease-resisting varieties. This variety is very similar in many respects to the Palmetto, but is claimed to be an improvement on that popular old variety.—W. F. A.)

RHUBARB

Rhubarb is especially the crop of the middle and northern states. South of Virginia, except in the high mountain sections, the crop seldom succeeds. In all the warmer parts of the South strong roots may give one crop, but will generally die out by the end of the first season.

Hence there is no value in Rhubarb as a crop for commercial purposes in the South. But from Maryland northward Rhubarb flourishes to great perfection. The plants can be grown from seed, but it is far better for the intending planter to get good strong roots from the Nursery.

These can be set either in spring or fall, though the fall of the year is the best time. A good plan in the home-garden is to set the roots about 4 feet apart each way, and in early spring turn a barrel over each plant, and pack all around with hot stable manure. The shoots will then be produced in a blanched condition in the barrels and can be gathered much earlier than if left to the natural growth, and the quality will be much better.

Rhubarb can also be grown in winter in a warm cellar by packing strong roots in soil and attending to the keeping up of the moisture. Houses built after the fashion of greenhouses, with hot-water pipes to maintain a temperature of 40 to 45 degrees at night, and with close shingle roof with ventilators at intervals, can be packed with strong roots and a large crop produced. Of course any of

these forcing methods means the exhaustion of the roots, and a new supply of roots must be maintained to replace those that are too weak to produce strong stalks.

Rhubarb can also be forced under the benches of an ordinary greenhouse if there is room there for the roots and the piping is not in the way. For ordinary outdoor cultivation the roots should be planted 4 feet apart each way, in heavily manured soil, for it is useless to try to grow fine stalks of Rhubarb in a poor soil. The plant is not particular as to the character of the soil, provided it is made rich. The earliest crops in the open ground are grown in a warm, sandy soil, but the largest crops are usually produced in a strong clay loam. The plantation must be kept manured annually and will last for many years. In a very strong soil it may be better to make the rows 6 feet apart and plant 4 feet apart in the rows. The varieties most generally grown are the Linnæus and the Victoria. When intended for winter forcing the roots should be three to four years old.

A good crop of rhubarb in any year depends in a great measure on the strong growth of the plants during the previous season. The seed stalks should therefore be cut off as fast as they grow, thus forcing the energy of the plant into producing foliage and roots, and storing up vitality to make a quick growth in early spring. The cultivation consists mainly in keeping down weeds and preserving a mulch until the leaves cover the ground.

CALIFORNIA PRIVET

This is a species of the order Ligustrum which has attained a wonderful popularity as a plant for ornamental hedges, since it can be clipped into any shape desired. While generally known as California Privet, the plant is really a native of Japan which came to us through California.

There are a great many varieties of Privet, but the California has become more generally used than any other. When planting for a hedge, the line of the hedge should be well prepared and manured in the fall. The planting should be done in early spring, though it can be done in the more southern sections in the fall.

In setting the plants from the nursery, set them deep enough for the lower branches to be in contact with the soil, as this is important in getting a thick and close base to the hedge. Then set the plants closer than many practise for the same reason. 6 to 8 inches in the row is better than farther apart.

After setting the hedge it is a good plan to mulch it on both sides with some rotten manure, and to keep the soil well cultivated for a time till the hedge is well established.



California Privet around the home of W. F. Allen, Salisbury, Md.

After setting the plants, cut all the tops back to a few inches from the main stem. During the first season, clip the tops several times to induce a broad and thick base. The common practice is to trim the sides perpendicular and the top flat like a wall. The danger with this method is that the sides do not get the full effect of the sunlight and will get thin underneath. A more dense growth to the ground can be had by trimming with a wide base sloping in a rounded conical form to the top. Trimmed in this way the base has a better chance and will thicken close to the ground.

A skilled hand, with a sharp sickle, can prune the hedge far more rapidly than with the shears, but the ordinary hand had better use a line and shears. With a little care in training one can make the hedge take almost any shape, and can train archways over the gates or trim into fantastic shape.

AMoor River PRIVET

This variety is coming into use more recently and is preferred by many, especially in the South, to the California. It has smaller leaves and is rather less rank in growth than the California species, and has the advantage of being more evergreen, holding its leaves here very well all winter.

As a single plant for ornamental shrubbery the Amoor River Privet is very attractive, for if left to take its natural shape as a shrub it becomes very graceful, and in spring

is loaded with its white flowers, making it one of the most attractive of shrubs. Coming from Siberia this species should be even more hardy than the California. There are other species of Privet that are even more evergreen than the Amoor River. *Lucidum* is a dwarf variety with broad leaves and as evergreen as a holly. *Japonicum* is also evergreen and hardy at Washington. The *Lucidum* has stood the winter at Philadelphia, but how far north it will stand is not known. For the rapid production of a hedge and cheapness of the plants the California Privet is as yet unsurpassed.

BOSTON IVY

The plant that has gotten this name is not an Ivy, but a species of the grape family, *Ampelopsis tricuspidata*. It is closely related to our common Virginia Creeper, *Ampelopsis quinquefolia*, but is neater in habit and clings more closely to the wall than the Virginia Creeper. This plant can be grown from seed or from cuttings of the ripe wood, but cuttings are slow to root, and it is found that one-year-old plants that have been grown from seed make a far more rapid growth on the wall than plants from cuttings. There is no plant that will more rapidly cover bare brick walls and chimneys and transform them into beauty in summer. Then, in the autumn the leaves turn a brilliant red before falling.

Of course, the true English Ivy is more attractive in winter from its evergreen character, but unfortunately,

it is not hardy much north of Maryland, and the Ampelopsis, having been found hardy in the North, has gotten the name of Boston Ivy from its common use there. It has become common to plant this climber on the walls of factories, and, in many places, the otherwise unsightly mills and factories have been made beautiful with its foliage. In planting, the soil at the base of the wall to be covered should be manured well and deeply prepared, for a rapid growth depends on the fertility of the soil, and the soil at the base of walls is generally poor and full of rubbish from the building. Hence the preparation of the bed should be thorough. After that the plant needs no attention, for it will soon take to the wall. Some people have a notion that vines of this character make a wall damp, but it is the very reverse, for the little suckers on the vine that enable it to cling to the bricks are always sucking moisture from the wall, and the cover of leaves prevents the rain from striking the wall.

CLEMATIS

This is another climbing plant of which there are numerous species native to various parts of the world. One of our most common native varieties is *Clematis Virginiana*, which climbs over the bushes by the roadside and is covered with its little white flowers and later with its curious seed-vessels. *Clematis flammula*, or Virgin's Bower, is very sweet-scented. But the most showy of the family have been introduced from Japan. These have

flowers of various colors and are very large and showy. One of the best known of the Japanese Clematis is the Jackmani, which covers itself with its big, dark bluish purple flowers, and lasts a long time in bloom.

Recently a white variety with flowers more nearly like our native Virginiana has become popular. This is *Clematis paniculata*. It is far more rapid in growth than the large-flowered Japanese sorts, and when in bloom makes a wonderful show of white bloom. Then, too, it is one of the hardiest of the family. It is very useful for training on porches or to make a wire fence attractive. An ordinary wire fence covered with this Clematis makes a remarkably fine show. In planting by a porch it is well to stretch a width of the woven chicken-wire for it to climb on. In the fall it is best to cut the growth back strongly, as the growth of the following year will then be much stronger. The curious seed-vessels make the vine attractive after the bloom is over. Like all plants that are valued for their strong growth, the Clematis demands a rich soil. The *Paniculata* will grow in poorer soil than the large-flowered sorts like Jackmani, but any of the family are better and more attractive if the soil is made rich and the plants well mulched with rotted manure during the severe northern winters. The richest color in the varieties and largest flowers are found only when the plants have received partial shade and a liberal supply of moisture at the roots. Among all the hardy perennials none respond more quickly to care and cultivation than the clematis, and none exceed in beauty and effectiveness the finer varieties.

FLOWERING SHRUBS

There are no plants that add more to the attractiveness of a home than the hardy shrubs that bloom in the spring and summer, and there is a wonderful variety from which to choose, most of which are hardy in all parts of the country.

SPIREAS. Of the spring-flowering shrubs none are more beautiful than the numerous shrubby Spireas.

Spiræa Thunbergi is the earliest to bloom in the spring. It is a very dwarf plant, with fine, willow-like leaves, and a profusion of small white flowers.

Spiræa Reevesii is very graceful in growth, and is covered with bloom like as if a snowstorm had piled over it. There are two forms, one single-flowered and one with double flowers.

Spiræa Van Houttei is a rapid grower and most profuse bloomer, the branches resting on the ground with the mass of bloom. Its smaller foliage than the preceding fully distinguishes it, the leaves being rounded and entirely different from other Spireas.

Spiræa Bumaldii was very popular as a summer bloomer, but is now superseded by its variety known as Anthony Waterer. This is a compact and dwarf-growing shrub which covers itself with flowers from spring till frost, the flowers being of a pleasing carmine color.

Spiræa Billardii is also a summer-flowering sort.

Spiræa prunifolia, the Plum-leaved Spirea, is also one of the pleasing spring-flowering varieties. Space will not allow the description of the dozens or hundreds of the Spireas. Many of these are of a herbaceous nature.

DEUTZIA *crenata* is the most common of the Deutzias, and is so called from its rough leaves. There is a single and a double-flowered variety, and a variety of the double that is pure white, while the common double Deutzia is pinkish on the outer petals. This Deutzia makes a very large bush, blooming later than the early spireas, and the double form is useful for cutting.

Deutzia gracilis is a very dwarf and early-flowering form, which is very commonly grown in greenhouses for Easter decoration in pots. It is, however, perfectly hardy and well suited to the outside rows of shrubbery plantations in company with *Spirea Thunbergi*. The Japanese use the dry, rough leaves of *Deutzia crenata* for polishing fine wood.

FORSYTHIAS. The Forsythias are among the earliest of the spring-flowering shrubs, and their golden yellow bells make a fine contrast with the snowy white of the shrubby spireas.

Forsythia viridissima is the earliest and most common. It is very erect in growth and rapid, too, and soon makes a striking bush.

Forsythia suspensa, or *Fortunei* has a drooping habit, and can be trained upon a trellis like a climber, and will in this way make a very striking display. But allowed to

take its natural form like a weeping willow, it is very beautiful. It may be trained up on the columns of a porch and make a very beautiful display.

ALTHEAS. The name Althea is more properly applied to our common Marsh Mallow. The plant commonly called Althea is *Hibiscus Syriacus*. It belongs to the same botanical family as the Marsh Mallow, the Malvaceæ, but unlike the Marsh Mallow, it is a perennial shrub or small tree. It can be grown to a single stem in a tree-like form, or as a bush, and it makes a very attractive hedge when planted with a variety of colors. The Althea varies greatly in its flowers; some are double like its relative, the double hollyhock. Others are single. Some are white with a purple base to the petals, while others are pure white, and still others rosy or red. Then, too, there is a variety with leaves variegated with white that has purple flowers. All the varieties are free-bloomers in early summer and last a long time in bloom; no collection of shrubs is complete without some of the varieties.

HYDRANGEAS. There are a number of species of shrubby Hydrangeas, and others that belong more to the herbaceous section, but are partly shrubby. The most popular of the shrubby Hydrangeas is the Japanese Hydrangea, *H. paniculata grandiflora*. This makes a large bush with immense heads of white flowers that gradually change to a pinkish color as they get older. The plant blooms in summer and the flowers last a long time and make a wonderful show.

The species *Hydrangea paniculata* is later in blooming than the *Grandiflora* and is also desirable. As a single specimen on a lawn there are few shrubs that make such a display as *Hydrangea paniculata grandiflora*, and it is perfectly hardy anywhere. In fact, it is better suited to the North and Middle States than the South, where it seems to be short-lived.

JASMINUM. There are a number of different species that are commonly known as Jessamines. The Cape Jessamine of the greenhouses and the open ground in the South is *Gardenia florida*, and *G. grandiflora*. This is a broad-leaved evergreen that is extensively grown in greenhouses in the Middle States and the North, but makes a large shrub in the open ground from eastern North Carolina southward. The true Jessamines belong to the genus *Jasminum*. These belong to the olive family, and many are perfectly hardy, though some are greenhouse plants. One of the most interesting of the hardy ones is *Jasminum nudiflorum*. This is a trailing shrub that can be trained as a climber. It is peculiar in blooming at every warm spell in winter showing its yellow flowers on its leafless stems when nothing else is in bloom, and continuing to bloom till the spireas and forsythias come.

Jasminum grandiflorum is a climbing plant with pretty evergreen foliage, and bears sweet-scented white flowers. *Jasminum revolutum* has yellow flowers. It is a sort of half-climber and does better as a bush. *Cestrum parqui* is a tender greenhouse plant, with small flowers that are very fragrant; it is known as night-blooming Jessamine.

PHILADELPHUS. There are several species of this genus, but only one in common culture. This is *Philadelphus coronarius*, commonly known as Mock Orange, and *Syringa*. But the name *Syringa* properly belongs to the lilac. *Philadelphus coronarius* is a handsome shrub, the flowers of which are fragrant like those of the orange, and the green leaves taste like cucumbers. It blooms later than the spireas, and is a very useful shrub.

RHUS. The genus *Rhus* includes all of our common Sumacs, some of which are very useful in a dense shrubbery on account of their seed-heads in the fall, and the brilliant red of the autumn foliage. But the species of *Rhus* commonly planted in shrubbery is the *Rhus cotinus*, Smoke Tree, or Venetian Sumac. It takes the name from the cloud-like inflorescence which gives the bush a very striking appearance in summer.

TAMARIX *Gallica* and *Africana* are pretty shrubs, with fine cedar-like foliage and small white or pink flowers. The feathery appearance of the foliage makes a fine contrast to the leaves of other broad-leaved shrubs, and the plants grow rapidly and are perfectly hardy.

STEPHANANDRA flexuosa is a hardy shrub bearing panicles of white flowers. It is a native of Japan and is closely allied to the shrubby spireas.

VIBURNUM. There are numerous species of *Viburnum*. *Viburnum tinus*, or as commonly called, Laurustinus, is barely hardy in normal winters here, and is hardy really only south of Virginia. The species that are of general

interest in the hardy shrubbery are *Viburnum opulus*, the common Snowball bush, and *Viburnum plicatum*, the Japanese Snowball. The old Snowball is a rapid-growing shrub, and a very showy one when in bloom. The Japanese is more compact in growth, has more handsome foliage and blooms rather later. Both are well worth growing. There is an evergreen species native to the mountains of North Carolina; this is *Viburnum lentago* and it is well worth a place in the shrubbery, as its spring bloom is handsome and its leaves and fruit show well in the fall.

WEIGELA. This genus is Japanese and Chinese and there are numerous species and varieties. It is a deservedly popular shrub, and botanically the genus is more properly *Diervilla*.

Weigela amabilis is the largest grower and has dark, red flowers.

Weigela rosea has rosy pink flowers, while *Weigela Hortensis nivea* has pure white flowers and blooms in June and July. Then there is a form with variegated leaves known as *Weigela rosea variegata*, the leaves being mottled with golden yellow. Many new varieties have been produced of late years, and there is no more interesting group of shrubs, as they prolong the flowering period after the early spring flowers well into summer.

WISTARIA. This plant is commonly called Wisteria, but as it was named after Dr. Wistar a noted Pennsylvania botanist, this spelling is wrong. The variety in

common use is *Wistaria Sinensis*, or Chinese Wistaria. This is a strong climbing plant that bears a profusion of purplish blue flowers in long clusters before the leaves come out in spring, and is one of the most showy of all ornamental climbers. Young plants start rather slowly and it takes several years to get a plant into fine blooming state. But it is well worth waiting for. There is a variety with white flowers, but not near so free blooming or showy as the blue one. There are also some late-flowering ones with purple flowers, but none so showy as *Sinensis*. The plant can be trained to a strong stake in a single stem form and made into a weeping tree on the lawn, but it is commonly grown as a porch climber. It will, however, climb into tall trees and drape them with flowers in the spring.

RAMBLER ROSES. These are of Japanese origin, and many varieties have been produced. The most common one is the Crimson Rambler, a very hardy climbing Rose that covers itself in early summer with a myriad of large clusters of small red flowers. There are also white and yellow varieties, but not so handsome as the red. A number of varieties have been produced of late years, the most handsome of these is probably Dorothy Perkins. This has rosy pink flowers in as great profusion of clusters as the Red or Crimson Rambler, and the individual flowers are more double. Recently there has been produced the Baby Crimson Rambler, a dwarf form that covers itself with crimson flowers from spring till frost. There are also varieties of the Crimson Rambler more or less distinct.

HARDY HERBACEOUS PLANTS

Perennial Phlox. There are few plants that are more showy all through the summer months than the numerous varieties of *Phlox decussata*. They have been greatly improved of late years, and varieties have been produced with immensely larger heads of flowers and of a more dwarf character than the old tall purple and white sorts. They will keep in bloom through the whole summer and make very attractive clumps in the herbaceous border. Not only have the flower-heads been made larger but the individual flowers are larger, and no one who has not seen the improved varieties can realize what this Phlox

has been developed to. There is hardly a color or shade of color that cannot be found among them.

Meehan's Marvel Mallows. Nothing in the line of hardy herbaceous perennials has attracted more attention than these wonderful Mallows. They are the result of crossing our common Marshmallow with the red one from Florida. They are perfectly hardy, and have flowers as big as a saucer and of all shades from pure white to dark red. They bloom through the early summer months, and a clump of the different colors makes a very attractive thing on a lawn.

Cannas. There is no plant grown as an ornamental plant that has been so much improved in its flowers as the Canna, or Indian Shot plant. The old varieties were tall-growing and were used entirely for their tropical-looking foliage, as the flowers were small and inconspicuous. But of late years innumerable varieties have been produced of a more dwarf character, and bear large heads of immense and showy flowers, from almost pure white to the deepest crimson, some golden yellow spotted with red, some pure yellow, some pink and deep rose, and many scarlet edged with yellow. They are grown now not only for their foliage but for their masses of flowers. Some have dark, bronzy purple foliage, the darkest of which is the Black Beauty, which is grown entirely for its foliage, as its flowers are small. But one of the more recent varieties, King Humbert, has also immense red flowers with dark purple red leaves. The Orchid-flowering varieties are among the most showy. Italia, Austria, Mrs. Grey, Pennsylvania and Louisiana belong to this group, and vary in the color of their flowers from golden yellow to crimson.

Dahlias. The Dahlia for a time went out of fashion, but of late there has been a great revival of interest in these plants, as many new varieties have been produced. Florists divide them into the Show, Decorative, Cactus-flowered and Single-flowered sorts. The Show Dahlias are the old formal type, very perfect in shape, but in the large-flowered sorts of the show section rather useless for cutting as compared with the show varieties of the pom-

pone or small-flowered sorts. The Cactus-flowered varieties are of comparatively recent production. They have curiously piped and twisted petals, and are among the best for cut-flowers, as they last longer in water than any others except the simple-flowered ones. The Decorative or Peony-flowered sorts have large, double flowers of a less formal shape than the Show varieties, and there are many very handsome varieties in this class. There has been a good deal of interest, too, in the Single-flowered sorts, starting with a handsome single Dahlia known as the Twentieth Century. For cut-flowers the single-flowered Dahlias are taking a prominent place.

Hydrangea Hortensia. There is no more showy border plant than the old *Hydrangea Hortensia*. Its flowers are normally pink when grown in pots or tubs, but when planted in the open ground they almost invariably turn blue. The plant is suffrutescent, or half-shrubby, and the tops are rather tender and need some winter protection. I grew them finely years ago in a locality where the mercury always fell below zero at times. I protected them by bending the branches to the ground and pinning them fast, and then cutting grass sods, sodded them all over so that they looked like green mounds all winter. They always came out right in spring and bloomed finely. In sheltered places here a cover of pine boughs is sufficient.

Recently a number of new varieties have been introduced from Japan such as *Hydrangea Otaksa* and Thomas Hogg. These are white and pink, dwarf in growth; bloom in immense heads. All are well worth growing.

Success With Small Fruits



One shipment of strawberry plants to one customer in season of 1911

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